## REMARKS

### The Amendments

Claims 1, 11 and 32 are amended to remove unnecessary language which renders the 35 U.S.C. §112 rejection moot, as discussed below. The amendments do not narrow the scope of the claims since the current claims do not exclude embodiments wherein the radionuclide component is part of a compound or complex. The amendments should not be interpreted as an acquiescence to any objection or rejection made in this application.

To the extent that the amendments avoid the prior art or for other reasons related to patentability, competitors are warned that the amendments are not intended to and do not limit the scope of equivalents which may be asserted on subject matter outside the literal scope of any patented claims but not anticipated or rendered obvious by the prior art or otherwise unpatentable to applicants. Applicants reserve the right to file one or more continuing and/or divisional applications directed to any subject matter disclosed in the application which has been canceled by any of the above amendments.

### The Restriction Requirement

Applicants maintain their traversal of the restriction requirement. Although it is true that applicants had made a previous election of species, it is not true that the subject matter of the instant claims was previously subject to a restriction requirement. The Office Action refers to "earlier restrictions on August 20, 2002, and November 18, 2002". However, the action of August 20, 2002, was an election of species requirement, not a restriction, and the action of November 18, 2002, was a restriction of the kit claims subject matter of claims 23-31, which subject matter has been canceled. The current composition and method claims

were never previously restricted from one another in the previous prosecution consisting of five full Office Actions on the merits and one Advisory Action. Although the examination/search has apparently been limited to the elected species – due to the election of species requirement – there has been no indication that it has been limited only to the claimed compositions or methods. The previous prosecution indicates that both the composition and method claims – as to the elected species – have been searched and examined.

For the above reasons, applicants reiterate that the composition and method claims – as to the elected species – have already been fully searched and examined together by the USPTO on numerous occasions. Thus, applicants reiterate that there is not a serious burden of extra search and examination on the Examiner. Additionally, it is believed an absence of serious burden is further evidenced by the eventual need to rejoin the method claims. The method claims require the particulars of the composition claims and, thus, allowance of the composition claims would necessarily lead to allowance of the method claims. Because the method claims should, eventually, be rejoined, no added burden is seen in including them in the examination now. Should the restriction be maintained, applicants request that an indication be provided that rejoinder is appropriate should the composition claims be found allowable and the method claims require the particulars thereof. Additionally, applicants urge that the separate classification of the methods and compositions asserted in the Office Action does not, alone, support presence of a burden. In the absence of a serious burden, restriction is not proper and the restriction requirement should be withdrawn.

**The Rejection under 35 U.S.C. §112, second paragraph**

The rejection of claims 1-4, 6, 8-10, and 32-33 under 35 U.S.C. §112, second paragraph, is rendered moot by the above amendments. The amendments remove the

language giving rise to the rejection. To clarify, the "optionally as part of a compound or complex" language was initially provided to refer to the nature of the radionuclide. It was believed it would have been clear to one of ordinary skill in the art in light of applicants' disclosure that the radionuclide could be provided as an independent component or incorporated as part of a compound or complex containing the radionuclide; see, e.g., the examples in the disclosure where the Tc-99m radionuclide is complexed to the targeting agent. Since the "optionally" language appeared only in the claim clause directed to the radionuclide, it is not understood how this was interpreted as meaning the targeting agent or iodide components were optional. In any event, to avoid confusion, the "optional" language is removed from the claims. It was unnecessary anyway because the radionuclide term in the claims encompasses its presence in any form.

**The Rejection under 35 U.S.C. §102**

The rejection of claims 1-4, 10 and 32-33 under 35 U.S.C. §102, as being anticipated by Solanki (U.S. Patent No. 5,262,175) is respectfully traversed.

As discussed above, the targeting agent is not an optional component of the claimed compositions. Although this was believed to be clear in the previous claims, the removal of the "optionally.. " language by the above amendments leaves no room for doubt. As admitted in the Office Action, Solanki provides no disclosure regarding a targeting agent component according to the instant claims. Thus, Solanki does not anticipate the instant claims and the rejection under 35 U.S.C. §102 should be withdrawn.

**The Rejection under 35 U.S.C. §103**

The rejection of claims 6, 8 and 9 under 35 U.S.C. §103, as being obvious over

Solanki (U.S. Patent No. 5,262,175) in view of Cyr (U.S. Patent No. 6,881,392) is respectfully traversed.

Solanki teaches a method for stabilizing radiopharmaceutical complex compositions, particularly Tc-99m labeled lipophilic complexes, such as Exametazime; see, e.g., col. 1, lines 7-11. The radiopharmaceutical element is complexed to an organic complexing compound selected from propyleneamineoximes, mercaptoethyl triglycines, bisaminothiols, kethoxal bisthiosemicarbazones and ethyl cysteinate dimers. The complex is stabilized by a weak oxidizing agent. See, e.g., col. 1, lines 31-49. As the weak oxidizing agent, sodium hypochlorite is preferred but other chlorine-releasing or other halogen-releasing agents, such as iodine, are also disclosed; see, e.g., col. 1, line 65, to col. 2, line 11. The Solanki disclosure is discussed in applicants' specification at page 2, first full paragraph.

As admitted in the Office Action, Solanki fails to disclose compositions or methods containing a targeting agent, as required by the instant claims. However, Solanki is additionally distinct in failing to disclose a composition or method containing "iodide ions or a compound which releases or generates iodide ions." Regarding claims 2 and 3, Solanki also fails to disclose use of an iodide salt or alkali metal iodide salt. The disclosure of the use of iodine in Solanki is not equivalent to a disclosure of the use of iodide ions. The term "iodine" can be used to describe the element, I, but is clearly used in Solanki as describing the compound $I_2$. Note the distinction between the compound iodine and iodide ions in the attached excerpt from Concise Encyclopedia Chemistry. Although iodide ions can be made from iodine under certain conditions. Such conditions are not those used in Solanki; nor does Solanki provide any disclosure or motivation to provide conditions under which iodine provides iodide ions in its compositions.

Cyr discloses methods for stabilizing radiopharmaceutical compositions by the

addition of hydrophilic 6-hydroxy-chroman derivatives. The radiopharmaceutical compositions to be stabilized according to Cyr may optionally include targeting agents. Example 1 discloses the stabilization of Tc-99m labeled depreotide.

Applicants respectfully submit that it would not have been obvious to one of ordinary skill in the art to combine the teachings of Solanki and Cyr in the manner suggested in the Office Action and, regardless, even if such combination were made, the claimed invention would not result or be suggested thereby.

Even if Solanki and Cyr were properly combinable, neither of them disclose compositions containing iodide ions or a compound which releases or generates iodide ions. Nor does either reference disclose a method wherein iodide ions aid in stabilizing a radiopharmaceutical composition against degradation thus maintaining high radiochemical purity of the composition. Thus, the combination of the references would not meet or suggest the iodide component of the instant claims. The distinction is even more evident with regard to claims 2 and 3 since neither of Solanki or Cyr disclose use of an iodide salt or alkali metal iodide salt. For this reason alone, the rejection based on the combination of Solanki and Cyr should be withdrawn.

Furthermore, applicants submit that it would not have been obvious to combine the Solanki and Cyr teachings in the manner suggested in the Office Action. Solanki teaches a composition and method for stabilizing a radiopharmaceutical complex which does not contain a targeting agent by using a weak oxidizing agent. Cyr teaches a composition and method for stabilizing a radiopharmaceutical that may be used in conjunction with a targeting agent by using a 6-hydroxychoman derivative. The Office Action alleges that it would have been obvious to combine the compositions of Solanki and Cyr to form a third composition because they are used for the same purpose. However, the purposes of the Solanki and Cyr

compositions are not the same. Solanki's purpose does not include providing a stabilized radiopharmaceutical which contains a targeting agent, as in Cyr. There is nothing in the art to suggest that the weak oxidizing agents of Solanki would also be useful to stabilize a radiopharmaceutical which contains a targeting agent. To the contrary, one of ordinary skill in the art looking at the combined teachings of Solanki and Cyr would conclude that the 6-hydroxychoman derivative stabilizers of Cyr would be necessary or desired for stabilizing a radiopharmaceutical containing a targeting agent. There is no basis on the record to support the conclusion that one of ordinary skill in the art would have a reasonable expectation of success in using the weak oxidizing agent stabilizers of Solanki to stabilize a composition containing a targeting agent such as depreotide disclosed in Cyr.

Furthermore, the legal conclusion in the Office Action that it would be obvious to combine the Solanki and Cyr compositions to obtain a third composition does not accurately apply to this situation. The case law upon which this conclusion is based relates to combining to active pharmaceuticals which are known to have the same activity. The facts are distinct here. Merely combining the Solanki and Cyr compositions would not be reasonable to one of ordinary skill in the art since the result would be a composition having two different radiopharmaceutical complexes – one with a targeting agent and one without – and two different stabilizers – a weak oxidizing agent and a 6-hydroxychoman derivative. There would be no motivation or desire for one of ordinary skill in the art to provide such a composition. (This discrepancy also highlights that the compositions have different purposes, as discussed above.) To arrive at or suggest the combination that the Office Action alleges is suggested by the prior art, one of ordinary skill in the art would have to pick and choose different components from the combined components of the two references. There is no motivation provided – other than from the improper use of applicants' own teachings – for

such picking and choosing in the references. Further, the *Kerkhoven* and similar case law does not support making such combination and picking and choosing different components thereof.

For the above reasons, it is urged that one of ordinary skill in the art would not be motivated to combine the prior art in a manner which would suggest applicants' invention and, even if combined, the prior art would not result in or suggest applicants' invention to one of ordinary skill in the art. Thus, the rejection under 35 U.S.C. §103 should be withdrawn.

It is submitted that the claims are in condition for allowance. However, the Examiner is kindly invited to contact the undersigned to discuss any unresolved matters.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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# Concise Encyclopedia Chemistry

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and preservatives, e.g. in eye medications. They have antibiotic activity against a large number of bacteria; gram-positive bacteria are particularly susceptible. In addition, I. act as antimycotics and can inactivate viruses. Some examples are benzododecinium bromide, alkonium bromide and cetylpyridinium chloride.

**Invert sugar**: an equimolar mixture of D-glucose and D-fructose. I. is obtained by acid-catalysed hydrolysis of sucrose. Because fructose is highly levorotatory, the sign of the optical rotation of the solution changes during the course of the hydrolysis, i.e. an inversion occurs. I. is present in honey at about 70% concentration. It is used to make artificial honey and to keep foods moist.

**In vitro**: (Latin, meaning "in glass") an adjective applied to experiments done under artificial conditions, e.g. in a test tube.

**In vivo**: (Latin, meaning "in life") an adjective applied to experiments in a living cell or organism.

**Iodate**: a salt of iodic acid, $HIO_3$, with the general formula $MIO_3$. I. are more stable than chlorates or bromates, but like these compounds, they are strong oxidizing agents. When mixed with combustible substances, I. explode easily on impact. Alkali iodates are obtained by dissolving iodine in hot alkali hydroxide solutions, or by anodic oxidation of alkaline iodide solutions. The slight amounts of sodium and calcium iodates found in Chile saltpeter are an important starting material for production of iodine.

**Iodic acid**: $HIO_3$, transparent, colorless, rhombic crystals; *M*, 175.93, density 4.650, m.p. 110 °C. I. is very soluble in water and is a medium strong acid (p*K* 0.804); it is a strong oxidizing agent and is the only halogen(V) acid of the type $HXO_3$ which can be isolated in anhydrous form. I. is obtained by oxidation of iodine with strong oxidizing agents such as conc. nitric acid, hydrogen peroxide, ozone or chlorine. If the oxidation is done with chlorine, hydrochloric acid is formed simultaneously: $I_2 + 5\ Cl_2 + 6\ H_2O \rightarrow 2\ HIO_3 + 10\ HCl$; the HCl must be removed by addition of silver oxide to pull the equilibrium toward the products. I. can be released from iodates by reaction with sulfuric acid: $MIO_3 + H_2SO_4 \rightarrow HIO_3 + MHSO_4$.

**Iodides**: metal salts of hydroiodic acid, and also covalent compounds of iodine with nonmetals, including organic compounds such as alkyl or aryl iodides. Alkali and alkaline earth metals form ionic, water-soluble I., MI or $MI_2$, while a few heavy-metal iodides are insoluble in water, e.g. silver(I) iodide, AgI (yellow), copper(I) iodide, CuI (colorless), mercury(II) iodide, $HgI_2$ (red) and thallium(I) iodide, TlI (yellow). There are also covalent, hydrolysable I., including phosphorus(III) iodide, $PI_3$, and silicon(IV) iodide, $SiI_4$.

**Iodination**: see Halogenation.

**Iodine**, symbol *I*: an element in group VIIa of the periodic system, the Halogens (see); a nonmetal, with only one natural isotope, *Z* 53, atomic mass 126.9045, valence - I, +I, +III, +IV, +V, +VII, density 4.942, m.p. 113.6 °C, b.p. 185.24 °C, standard electrode potential ($I^-/I_2$) +0.5255 V.

*Properties*. I forms gray-black, semiconducting, rhombic crystals with a metallic sheen; even at room temperature they are somewhat volatile, forming a vapor of violet $I_2$ molecules. If I is heated fairly slowly, it will completely sublime below the melting point. It has a characteristic pungent odor, and the vapors are poisonous. Solid I forms a layered lattice, in which the intermolecular distance between the atoms of neighboring $I_2$ molecules is 349.6. This is a very short distance, and delocalization of electrons within the layers leads to two-dimensional semiconductor properties and the metal-like sheen of I. In nonpolar solvents, such as carbon disulfide, chloroform or tetrachloromethane, I. dissolves as molecules, giving a violet solution. On the other hand, the red solutions of I. in aromatic hydrocarbons and the brown solutions in donor solvents such as diethyl ether, acetone, dioxane and pyridine, contain charge-transfer complexes of the I. with the solvent molecules, $I_2 \cdot D$. I. is only very slightly soluble in water (0.022 g in 100 g $H_2O$), and gives a weak, brownish yellow color. However, it dissolves very readily in potassium iodide solution, forming dark brown potassium triiodide, $KI_3$. I. is chemically very similar to the other halogens, but its reactions are less vigorous. It reacts vigorously with a number of elements, including iron, mercury, sulfur, phosphorus, antimony, silicon and nickel, forming iodides. A characteristic of I. is its ability to form cationic compounds in the +1 and +3 oxidation states. For example, iodine(I) perchlorate is can be made by reaction of I. with silver perchlorate in a benzene solution: $I_2 + AgClO_4 \rightarrow IClO_4 + AgI$; iodine(III) perchlorate is obtained by reaction of the same substances in ether at - 85 °C: $2\ I_2 + 3\ AgClO_4 \rightarrow I(ClO_4)_3 + 3\ AgI$. Iodine(I) compounds can be stabilized by Lewis bases, e.g. $[IPy_2][ClO_4]$ and $[Ipy_2][NO_3]$.

*Analysis*. I is characterized by formation of an intense blue inclusion compound with starch (see Iodometry). The iodide ion, $I^-$, can be detected by reaction with silver nitrate to form yellow silver(I) iodide, AgI. Iodine also forms a dark red mercury(II) iodide, $HgI_2$, and yellow lead(II) iodide, $PbI_2$. Elemental I. can be determined quantitatively by titration with sodium thiosulfate, while iodide is determined by argentometry or gravimetrically as AgI.

*Occurrence*. I makes up $6.1 \cdot 10^{-5}$% of the earth's crust, and is thus one of the least abundant elements. It is found only as its compounds in nature; the most important iodine deposits are the saltpeter deposits in Chile, and natural waters (from deep wells and brines from petroleum and natural gas wells). Chile saltpeter can contain up to 0.3% I in the form of sodium iodate, $NaIO_3$, or calcium iodate (lauterite), $Ca(IO_3)_2$. Water from deep layers used for I. production contain up to 50 ppm I.; the brines from petroleum deposits can contain up to 100 ppm. I. also occurs widely in rocks and soils (about 5 ppm). Seawater contains about 0.002% I., mainly in organic form. Various marine organisms, such as kelp and algae, corals and sponges can enrich I. up to 0.45% of their dry matter.

I. is an important bioelement; plants contain about 0.1 ppm. It is essential for the human body, as it is a component of the thyroid hormones thyroxin and triiodothyronin. The daily human requirement is about 2 mg. I deficiency leads to goiter, and in severe cases, to cretinism.

*Production*. I. is enriched in the mother liquors

ıles. If I is heated fairly, ;ublime below the melting tic pungent odor, and the d I forms a layered lattice, lar distance between the olecules is 349.6. This is a delocalization of electrons two-dimensional semicon- metal-like sheen of I. In h as carbon disulfide, omethane, I. dissolves as t solution. On the other I. in aromatic hydrocarbons, in donor solvents such as oxane and pyridine, contain s of the I. with the solvent ıly very slightly soluble in $H_2O$), and gives a weak; However, it dissolves very ide solution, forming dark e, $KI_3$. I. is chemically very ens, but its reactions are less ously with a number of ele- ercury, sulfur, phosphorus, ickel, forming iodides. A ibility to form cationic com- -3 oxidation states. For ex- ate is can be made by reac- chlorate in a benzene solu- $IO_4 + AgI$; iodine(III) per- eaction of the same substan- $_2 + 3\ AgClO_4 \rightarrow I(ClO_4)_3 + 3$ ounds can be stabilized by $ClO_4]$ and $[Ipy_2][NO_3]$. rized by formation of an in- ompound with starch (see ion, $I^-$, can be detected by ate to form yellow silver(I) forms a dark red mercury(II) v lead(II) iodide, $PbI_2$. Ele- ined quantitatively by titra- ılfate, while iodide is deter- or gravimetrically as AgI. up $6.1 \cdot 10^{-5}$% of the earth's the least abundant elements. mpounds in nature; the most ts are the saltpeter deposits in s (from deep wells and brines tural gas wells). Chile saltpe- .3% I in the form of sodium calcium iodate (lauterite), eep layers used for I. produc- ppm I.; the brines from pe- ontain up to 100 ppm. I. also and soils (about 5 ppm). Sea- ).002% I., mainly in organic organisms, such as kelp and es can enrich I. up to 0.45% of

element; plants contain about for the human body, as it is a roid hormones thyroxin and daily human requirement is y leads to goiter, and in severe

riched in the mother liquors from processing Chile saltpeter. The iodate present in the liquor is reduced with sulfurous acid to I: $2\ HIO_3 + 5\ H_2SO_3 \rightarrow I_2 + 5\ H_2SO_4 + H_2O$. The precipitated I. is filtered out and purified by multiple sublimation steps. To obtain I from iodide-containing waters, it is first oxidized with chlorine to $I_2$, then isolated and purified by repeated absorption and desorption, reduction and oxidation steps. A small amount of I. is still isolated from seaweed.

*Application*. I. is used as an antiseptic and to stop bleeding (see Iodine, tincture of). Considerable amounts of I. are used in the synthesis of drugs used to treat abnormal thyroid function. Iodides are added to animal feeds as trace element sources. I. and its compounds are used in photochemistry, preparative and analytical chemistry, and organoiodine compounds are used as x-ray contrast media. The nuclide $^{131}I$ is obtained from nuclear reactors; it is a β-emitter with a half-life of 8.04 d and is used in medicine.

*Historical*. I. was first isolated from the ashes of seaweed in 1811 by Coutois. In 1815, Gay-Lussac demonstrated that it is an element, and it was named after the color of its vapor (the Greek word "ioedides" means "violet").

**Iodine azide**: see Halogen azides.

**Iodine bromide**: see Iodine halides, see Interhalogen compounds.

**Iodine chlorides**: see Iodine halides, see Interhalogen compounds.

**Iodine charcoal**: granulated activated charcoal containing iodine. It is used to pick up spilled mercury.

**Iodine cinnabar**: see Mercury iodides.

**Iodine fluorides**: see Iodine halides, see Interhalogen compounds.

**Iodine halides**: very reactive Interhalogen compounds (see) obtained by reaction of iodine with the lighter halogens. The I. have general formulas IX (X = F, Cl, Br), $IF_n$ ($n$ = 3, 5, 7) and $(ICl_3)_2$. ***Iodine monofluoride***, IF, is a chocolate-brown solid, dec. above 0 °C; ***iodine monochloride***, ICl, is a dimorphous compound. α-ICl forms ruby-red needles, m.p. +27.38 °C, and β-ICl (metastable) forms red-brown, rhombic platelets, m.p. 13.9 °C, b.p. 97.4 °C. ***Iodine monobromide***, IBr, forms red-brown crystals, m.p. +41 °C, b.p. +116 °C, and ***iodine trifluoride***, $IF_3$, is a yellow powder (at - 78 °C); m.p. - 28 °C (dec.). ***Iodine trichloride*** $(ICl_3)_2$ forms yellow crystalline needles, m.p. 101 °C (at 1.6 MPa), b.p. 77 °C (dec.). ***Iodine pentafluoride***, $IF_5$, is a colorless liquid, m.p. +9.42 °C, b.p. 104.48 °C; ***iodine heptafluoride***, $IF_7$, colorless gas, m.p. +6.45 °C, b.p. 4.77 °C.

**Iodine number**: see Fats and fatty oils.

**Iodine oxides**: ***Diiodine tetroxide***: $I_2O_4$, yellow, grainy compound, $M_r$ 317.81, density 4.2, m.p. 130 °C. When heated to about 135 °C, it undergoes a disproportionation reaction: $5\ I_2O_4 \rightarrow 4\ I_2O_5 + I_2$. $I_2O_4$ reacts with alkali hydroxide solutions to form iodide and iodate. It is synthesized by a slow reaction of hot, concentrated sulfuric acid with iodic acid. Structurally, $I_2O_4$ is probably iodosyl(III) iodate(V). ***Diiodine pentoxide, iodine(V) oxide***: $I_2O_5$, white, crystalline powder, $M_r$ 333.80, density 4.799, m.p. ≈ 300 °C (dec.). When heated to about 300 °C it decomposes into the elements. It can be considered the anhydride of iodic acid, with the structure $O_2IOIO_2$ (∢IOI 139.2°, terminal I-O distances, 180 pm, bridge IO distance, 194 pm): $I_2O_5 + H_2O \rightleftharpoons 2\ HIO_3$. $I_2O_5$ is obtained by heating iodic acid to about 250 °C; it is the only exothermal halogen oxide.

***Diiodine heptoxide, iodine(VII) oxide***, $I_2O_7$, an orange, polymeric solid, $M_r$ 365.81, formed by dehydration of periodic acid with concentrated sulfuric acid. When heated to 100 °C, it is converted to $I_2O_5$ according to the equation $I_2O_7 \rightarrow I_2O_5 + O_2$.

**Iodine red**: see Mercury iodides.

**Iodine spirits**: a dark, red-brown liquid which smells like iodine; it is made by dissolving certain amounts of iodine and potassium iodide in 80% ethanol. I. is used to disinfect wounds, but because of possible allergic reactions, it is now rarely used.

**Iodine, tincture of**: a dark brown liquid which smells like iodine; density 0.898 to 0.902. I. is an alcohol solution of iodine which contains 7% iodine and 3% potassium iodide; it is used in medicine to disinfect wounds.

**Iodoacetic acid**: $I\text{-}CH_2\text{-}COOH$, a colorless, crystalline compound; m.p. 83 °C. I. is soluble in water and alcohol. It can cause severe burns on the skin. It is synthesized by reaction of chloroacetic acid with potassium iodide in aqueous solution. It is used in organic syntheses and in biochemistry to inhibit certain enzymes.

**Iodobenzene**, ***phenyl iodide***: $C_6H_5\text{-}I$, a colorless liquid which turns brown in the air, due to precipitation of iodine; m.p. - 31.3 °C, b.p. 188.3 °C, $n_D^{20}$ 1.6200. I. is barely soluble in water, but dissolves readily in alcohol, ether, acetone and benzene. It can be made by iodination of benzene in the presence of nitric acid or by the Sandmeyer reaction (see) from benzene diazonium salts. I. is used in the synthesis of iodine-containing x-ray contrast materials.

**Iodoform**, ***triiodomethane***: $CHI_3$, forms yellow, hexagonal platelets with a penetrating, sweetish odor; m.p. 123 °C, b.p. about 218 °C. I. is practically insoluble in water, but is soluble in ether, acetone, carbon disulfide and chloroform. It is steam volatile. It decomposes readily in the presence of light. I. can be synthesized by the Iodoform test (see); industrially, it is made by electrolysis of alkali iodides in alcohol-water or acetone-water mixtures. I. is sometimes still used as an antiseptic for treating cuts, and as a non-sulfur vulcanizing material for rubber.

**Iodoform test**: a reaction used to detect the presence of an acetyl group, $CH_3\text{-}CO\text{-}$ (e.g. in acetone) or a 1-hydroxyethyl group, $CH_3\text{-}CH(OH)\text{-}$ (e.g. in ethanol). Iodine and potassium hydroxide react with these functional groups to form iodoform, which is a yellow, water-insoluble compound. For example: $CH_3\text{-}CH(OH)\text{-}R + I_2 + 2\ KOH \rightarrow CH_3\text{-}CO\text{-}R + 2\ KI + 2\ H_2O$; $CH_3\text{-}CO\text{-}R + 3\ I_2 + 3\ KOH \rightarrow CI_3\text{-}CO\text{-}R + 3\ KI + 3\ H_2O$; $CI_3\text{-}CO\text{-}R + KOH \rightarrow HCI_3 + R\text{-}COOK$. The I. can be used with compounds which are fairly insoluble in water in the presence of a solubilizer such as dioxane. This reaction is a variant of the Haloform reaction (see).

**Iodomethane**: same as Methyl iodide (see).

**Iodometry**: method of redox analysis based on the corresponding redox pair iodine/iodide. With a standard potential $E_0$ = +0.536, iodide is a weak oxidizing agent. Strong reducing agents, e.g. tin(II), arsenicIII), thiosulfate, sulfide and sulfite, can be ti-